

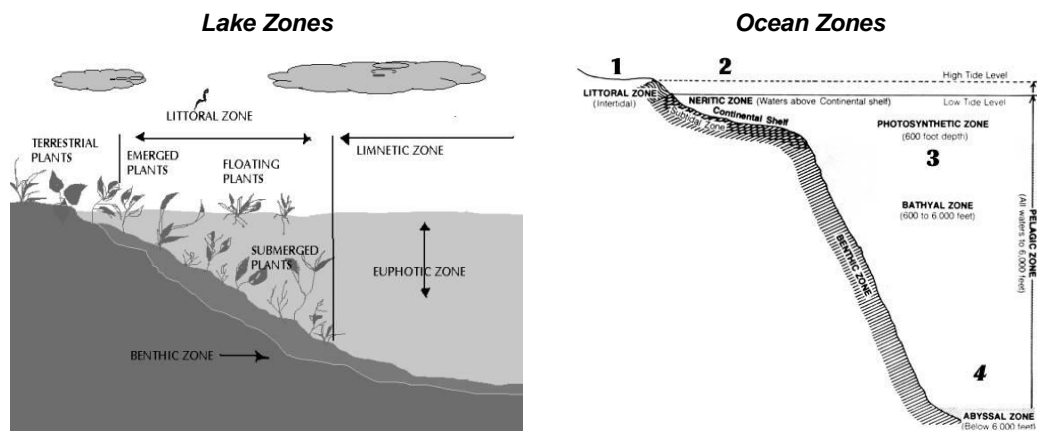
Living things in aquatic environments are affected by many factors.

Student \_\_\_\_\_

Class \_\_\_\_\_

### The Diversity of Organisms In Saltwater and Freshwater Systems

- Diversity** occurs within many different ecosystems around the world. The ecosystem that is the most diverse is the ...
  - coral reefs
  - woodlands
  - rainforests
  - deserts
- An **ecosystem** is any place where living organisms interact with other living organisms and non-living things. This many, of all the major types of organisms, live in saltwater environments for some time in their lives ...
  - one half
  - two thirds
  - one quarter
  - three quarters
- 



Lakes are freshwater bodies in low areas of land. Like the oceans, they have layers, or zones.

The euphotic zone is the open water area that still has some light penetration. This zone could be compared to this ocean zone ...

- 1
- 2
- 3
- 4

- The **continental shelf** is a shelf of land that extends out from the edge of a continent below the ocean's surface. The water in this zone of the ocean is ...
  - Cold and rich in a variety of species
  - Cold and dark with few species
  - Warm and light making it rich in nutrients
  - Warm and dark with few nutrients

5. The **deepest lake** in the world is in Russia. Compared to the oceans, it is relatively shallow. Ocean depth can reach 36,000 ft, whereas this lake is only 5600 ft. The lake in Russia is ...
- A Lake Moscow
  - B Lake Ukraine
  - C Lake Alexandria
  - D Lake Baikal
6. Another important zone in the ocean ecosystem is the one that enables many of the species that live there to live part of their lives out of the water. This zone is the **shoreline**. It is called the ...
- A Intertidal Zone
  - B Estuary Zone
  - C Continental Zone
  - D Oceanic Zone
7. Another important zone in the ocean ecosystem is the one that contains **brackish** water (a mixture of saltwater and freshwater). It is called the ...
- A Intertidal Zone
  - B Estuary Zone
  - C Continental Zone
  - D Oceanic Zone
8. **Bioluminescence** (as you learned in the Light and Optics Unit) is a characteristic that enables some aquatic organisms to produce their own light. The organs that enable these organisms to produce their own light are called ...
- A phosphors
  - B pituitary glands
  - C phosphorescent
  - D photophores
9. **Adaptations** are physical characteristics, or behaviors of a species, that increase its chances of survival. All living things have adaptations that are specific for the environment they live in. Fish in arctic water have a special adaptation that prevents their blood and body tissue from freezing. It is a natural ...
- A apergum
  - B antifreeze
  - C synthetic
  - D bladder
10. Organisms that live on the shoreline have adapted themselves to their environment by attaching themselves to the rocks. Their hard body shell protects them from the pounding waves that constantly bombarded them. These organisms are ...
- A clams
  - B starfish
  - C oysters
  - D barnacles

### Populations in Fresh and Salt Water

11. The study of populations looks at groups of organisms within a particular species. A **population** is a group of organisms of the same species that live in...
- A saltwater
  - B freshwater
  - C an ocean zone
  - D a particular area

12. Using the estimation method, scientists can predict the size of a species population. They can use the **quadrant sampling method**. An example of this method follows.

24			16			12			
	40						16		
			28						
								70	
	32								
			10						
									32

To find the size of this population you would do the following ...

- A Find the average of all the numbers and multiply by the number of squares you sampled**  
**B Find the average of all the numbers and multiply by the total number of squares**  
**C Find the average of all the numbers and multiply by the number of rows**  
**D Find the average of all the numbers and divide by the number of squares sampled**
13. Population changes can occur because of a number of factors. Extremes in temperatures occur because of these types of changes ...
- A short-term**  
**B long-term**  
**C permanent**  
**D seasonal**
14. These types of population changes can occur naturally but do not happen every year ...
- A short-term**  
**B long-term**  
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15. Zebra mussels, introduced into the great lakes in 1988, is an example of this type of population change ...
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### Water Quality and Living Things

16. Heartland lakes with high concentrations of carbonates and bicarbonates have white coatings on the rocks near the shoreline. These minerals have been dissolved out of the soil and have made the lakes ...
- A acidic**  
**B alkaline**  
**C saline**  
**D indicative**
17. **Brine** shrimp are microscopic organisms that live in salt lakes and brine ponds. Few other organisms can live in these environments because the environment is so ...
- A salty**  
**B warm**  
**C cold**  
**D acidic**

18. Which of the following environments would have the greatest diversity?  
**A pond**  
**B puddle**  
**C lake**  
**D sea**
19. Often when too many chemicals are added into an environment, pollution occurs. This is evident when fertilizer runoff from farmer's fields increases the growth of green slime in a body of water nearby. This green slime is called ...  
**A algal bloom**  
**B algae slime**  
**C creeping algae**  
**D fertile algae**
20. A population is related to a species in the following way ...  
**A A specific population is part of a species**  
**B A species is part of a specific population**  
**C A population is a specific species in a particular area**  
**D A species is specific to a particular population**



The April 20, 2010 explosion of the *Deepwater Horizon*, in which 11 people died, led to an oil spill that has contaminated a vast area of United States marine environment and continues to have a serious impact on wildlife, the local fishing industry, and regional tourism.

This not the first example of a BP environmental disaster. In August 2006, BP shut down oil operations in Prudhoe Bay, Alaska, due to corrosion in pipelines leading up to the Alaska Pipeline. The wells were leaking insulating agent called Arctic pack, consisting of crude oil and diesel fuel, between the wells and ice. BP had spilled over one million liters of oil in Alaska's North Slope.

Describe the impact of these types of disasters on water quality.

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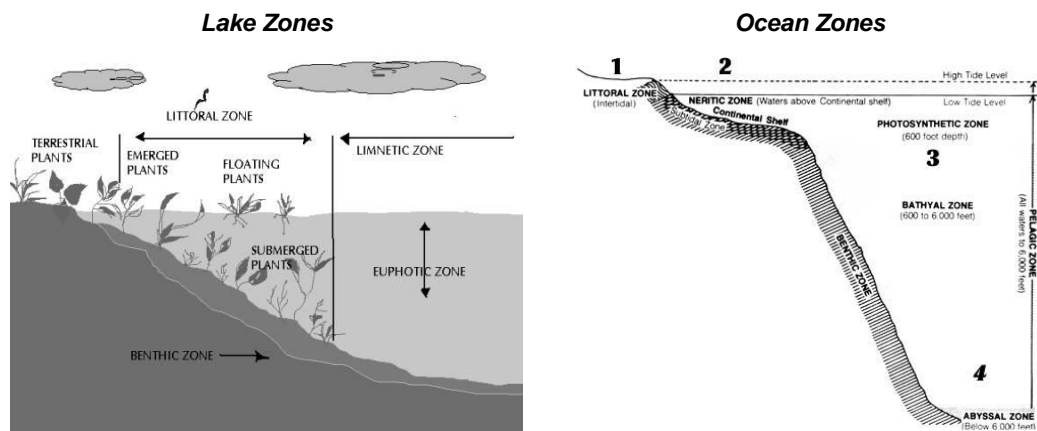
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Oil penetrates the structure of the plumage of birds, reducing its insulating ability, and so making the birds more vulnerable to temperature fluctuations and much less buoyant in the water. It also impairs birds' flight abilities to forage and escape from predators. As they attempt to preen, birds typically ingest oil that covers their feathers, causing kidney damage, altered liver function, and digestive tract irritation. This and the limited foraging ability quickly causes dehydration and metabolic imbalances.

Bacteria occur naturally and will act to remove oil from an ecosystem, while their biomass will replace other populations in the food chain.

Because oil floats on top of water, less sunlight penetrates into the water, limiting the photosynthesis of marine plants and phytoplankton. This, as well as decreasing the fauna populations, affects the food chain in the ecosystem.